west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	G40-C087
Plant ID No.:	069-00099
Applicant:	Tunnel Ridge, LLC
Facility Name:	Triadelphia Plant
Location:	Short Creek, Ohio County
NAICS Code:	212112 (Bituminous Coal Underground Mining)
Application Type:	Construction
Received Date:	January 23, 2017
Engineer Assigned:	Thornton E. Martin Jr.
Fee Amount:	$1,500
Date Received:	January 27, 2017
Complete Date:	February 23, 2017
Applicant Ad Date:	January 20, 2017
Newspaper:	*Intelligencer*
UTM's:	Easting: 529.297959 km Northing: 4444.739994 km Zone: 17
Description:	Applicant proposes to construct and operate a portable crushing/screening plant to process rock onsite for various uses, such as riprap, energy dissipaters or fill material.

PROCESS DESCRIPTION

The process will begin with a hydraulic loader moving previously stockpiled rock to the Metso 2008 LT 106 Track Jaw Crusher feeder hopper (TP-1). The vibrating grizzly feeder hopper transfers the rock to the jaw crusher at TP-2. The material will go from the jaw crusher to the main product conveyor, BC-1 at TP-3. A factory installed water spray bar will provide for dust suppression for the main product conveyor. From the conveyor, the processed rock will go to the screen hopper (TP-4). The hopper will feed a conveyor, BC-2 at TP-5 and then to a Terex 883 double deck screen (TP-6). The sized material will drop onto one of two conveyor belts, BC-3 and BC-4 at transfer points (TP-7 and TP-8) or fall to ground at TP-9. These two conveyor belts will drop to separate stockpiles or to trucks(TP-10 and TP-11). A water truck will provide dust suppression for the stockpiles.

The facility shall be constructed and operated in accordance with the following equipment and control device information taken from registration application G40-C087:

Table 1: Equipment Summary

Equipment ID No.	Date of Manufacture	Description	Maximum Capacity		Control Equipment [1]
			TPH	TPY	
OS-1	2017	3,000 ton Open Stockpile - previously stockpiled rock (raw material)	----	600,000	SW-WS
BS-1	2008	Crusher Hopper - receives rock from open stockpile OS-1 via loader and then feeds crusher CR-1	300	600,000	PE
CR-1	2008	Jaw Crusher - receives rock from BS-1, crushes material dropping onto main product conveyor BC-1	300	600,000	FE
BC-1	2008	Belt Conveyor - receives processed rock from crusher CR-1 and transfers to screen hopper BS-2	300	600,000	WS
BS-2	2015	Screen Hopper - receives processed rock from belt conveyor BC-1 and transfers to belt conveyor BC-2	300	600,000	PE
BC-2	2015	Belt Conveyor - receives processed rock from screen hopper BS-2 and transfers to screen SC-1	300	600,000	N
SC-1	2015	Double Deck Screen - receives processed rock from belt conveyor BC-2. Sized rock drops to belt conveyors BC-03 or BC-04 or to ground	300	600,000	FE
BC-3	2015	Belt Conveyor - receives sized rock from screen SC-1 and transfers to open stockpile OS-2 or to truck	200	400,000	N
OS-2	2017	3,000 ton Open Stockpile - receives sized rock from belt conveyor BC-3	----	400,000	SW-WS
BC-4	2015	Belt Conveyor - receives sized rock from screen SC-1 and transfers to open stockpile OS-3 or to truck	100	200,000	N
OS-3	2017	2,000 ton Open Stockpile - receives sized rock from belt conveyor BC-4	----	200,000	SW-WS
E-1	2008	Caterpillar C9, Tier 3(CARB:U-R-001-0322)	300 bhp/2,200 rpm		N
E-2	2015	Caterpillar C4.4, (EU: Stage IIIA, Mfg. Data Sheet)	110 bhp/2,200 rpm		N

[1] FE - Full Enclosure; PE - Partial Enclosure; WS- Water Spray N - None

DESCRIPTION OF FUGITIVE EMISSIONS

The potential sources of fugitive particulate emissions are:

1. Feeding Vibratory Grizzly Feeder Hopper
2. Vibrating Grizzly Feeder Hopper
3. Jaw Crusher
4. Main Product Conveyor

5. Crusher Conveyor to Screen Hopper
6. Screen Hopper to conveyor
7. Conveyor to screen
8. Screen to conveyor
9. Screen to side conveyor

The primary fugitive dust control equipment will be a 3,000 gallon water truck. The water truck will be used primarily to control fugitive particulate emissions on the haul roads, and stock piles. By wetting the material in the surge pile and stockpile, fugitive particulate emissions will also be controlled at the receiving hopper and conveyor by moisture carryover. The water truck has a maximum application rate of approximately 10,000 gph and application frequency will be dependent on environmental conditions. The frequency will vary from zero during rainy conditions to approximately four to five applications per day during extremely dry conditions.

In addition to the water truck, a factory installed spray bar on the main product conveyor will be used. This spray system has a maximum application rate of 1,000 gph. Again the frequency rate will vary depending on environmental conditions. The spray bar will be used continuously during operation.

SITE INSPECTION

The Applicant proposes to construct and operate a portable crushing/screening plant to process rock onsite for various uses, such as riprap, energy dissipaters or fill material. The proposed site is situated within the mine boundaries, therefore, a site inspection was not deemed necessary at this time in conjunction with this permitting action.

Directions: From State Route 2, turn East onto State Route 1, Travel 2.65 miles. The entrance is on the South side of State Route 1.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Fugitive emission calculations for continuous and batch drop operations, transfer points, crushing and screening, storage piles, and paved and unpaved haul roads are based on AP-42 "Compilation of Air Pollution Emission Factors." Control efficiencies were applied based on the Reference Document for General Permit G40-C. The estimated emission calculations were performed by the applicant's consultant using the General Permit G40-C Excel emission calculation spreadsheet. I spoke with the Applicants' consultant in regards to the throughput used in the calculations. The revised application used 300 TPH and 120,000 TPY as the throughput for the crusher and screen. The consultant agreed that the correct throughput should be 300 TPH and 600,000 TPY. The emissions presented in Table 2 represent the latter throughput rate.

The engine emissions included in the original application were found to be overstated, as the calculations were based on AP-42 emission factors instead of Manufacturers Data or EPA's Certificate of Conformity. A revised application was received on February 17, 2017 which included engine emissions calculated from the Certificate of Conformity for the Caterpillar C9 and from the Manufacturer's Data Sheet for the Caterpillar C4.4. The estimated engine emissions in tons/year

were found to be in error in the revised application. The estimates presented in Table 3 have been corrected to reflect 2,000 hours of operation.

The proposed construction and operation of this nonmetallic mineral processing plant with a throughput of 300 TPH and 600,000 TPY will result in the estimated potential to discharge controlled emissions of 4.84 TPY of PM (particulate matter) and 2.27 TPY of PM_{10} (particulate matter less than 10 microns). Estimated emissions for the engines, based on the Certificate of Conformity for (E-1) and Manufacturer's Data Sheet for (E-2), and operating for 2,000 hours will be 2.23 TPY of CO (Carbon Monoxide), 1.70 TPY of NOx (Nitrogen Oxides), 0.58 TPY of VOC (Volatile Organic Compounds) and 0.14 TPY of PM_{10} combined. Refer to the following tables for a complete summary of the proposed facility's emissions:

Table 2: Emissions Summary *(less Engines, operating 2,000 hours/year)*

Emissions Summary - *Tunnel Ridge, LLC Triadelphia Plant*	**Controlled PM Emissions**		**Controlled PM_{10} Emissions**	
	lb/hour	*TPY*	lb/hour	*TPY*
Fugitive Emissions				
Stockpile Emissions	0.05	0.23	0.02	0.11
Unpaved Haulroad Emissions	0.00	0.00	0.00	0.00
Paved Haulroad Emissions	0.00	0.00	0.00	0.00
Fugitive Emissions Total	*0.05*	*0.23*	*0.02*	*0.11*
Point Source Emissions				
Equipment Emissions	0.81	0.81	0.29	0.29
Transfer Point Emissions	3.66	3.66	1.73	1.73
Point Source Emissions Total	*4.47*	*4.47*	*2.02*	*2.02*
FACILITY EMISSIONS TOTAL	**4.52**	**4.70**	**2.04**	**2.13**

Table 3: Engine Emissions *(operating 2,000 hours/year)*

Source	**Pollutant**	**Maximum Hourly Emissions (lb/hr)**	**Maximum Annual Emissions (tons/yr)**
E-1 Caterpillar C9	Carbon Monoxide	1.33	1.33
	Nitrogen Oxides	1.16	1.16
	Volatile Organic Compounds	0.40	0.40
	PM_{10}	0.09	0.09
E-2 Caterpillar C4.4	Carbon Monoxide	0.90	0.90
	Nitrogen Oxides	0.54	0.54
	Volatile Organic Compounds	0.18	0.18
	PM_{10}	0.05	0.05
Total	Carbon Monoxide	2.23	2.23
	Nitrogen Oxides	1.70	1.70
	Volatile Organic Compounds	0.58	0.58
	PM_{10}	0.14	0.14

REGULATORY APPLICABILITY

PSD has no applicability to the proposed facility. The proposed construction and operation of a portable crusher/screening plant is subject to the following state and federal rules:

45CSR7 *To Prevent and Control Particulate Matter Air Pollution From Manufacturing Processes and Associated Operations*

The facility is subject to the requirements of 45CSR7 because it meets the definition of "Manufacturing Process" found in subsection 45CSR7.2.20. The facility should be in compliance with Subsection 3.1 (no greater than 20% opacity), Subsection 3.7 (no visible emissions from any storage structure pursuant to subsection 5.1 which is required to have a full enclosure and be equipped with a control device), Subsection 4.1 (PM emissions shall not exceed those allowed under Table 45-7A), Subsection 5.1 (manufacturing process and storage structures must be equipped with a system to minimize emissions), Subsection 5.2 (minimize PM emissions from haulroads and plant premises) when the particulate matter control methods and devices proposed within application G40-C087 are in operation.

According to Table 45-7A, for a type 'a' source with a maximum process weight rate of 600,000 lb/hour, the maximum allowable emission rate is 50 lb/hour of particulate matter. The maximum emission rate is 5.11 lb/hour of particulate matter according to calculated emissions in fact sheet G40-C087.

45CSR13 *Permits for Construction, Modification, Construction and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation*

The proposed construction is subject to the requirements of 45CSR13, subsection 2.24.a. The source is subject to NSPS subparts OOO and IIII. The applicant has applied for a G40-C registration to construct, submitted the proper $1,500 application fee and published a Class I legal advertisement in the *Intelligencer* on January 20, 2017.

45CSR16 *Standards of Performance for New Stationary Sources*
40 CFR 60 *Subpart OOO: Standards of Performance for Nonmetallic Mineral Processing Plants*

The proposed construction is subject to 40 CFR 60 Subpart OOO because it will occur after April 22, 2008 and the plant processes more than 150 tons of rock per hour. The proposed construction will include one (1) double deck screen, one (1) jaw crusher and four (4) belt conveyors, which are defined as affected facilities in 40 CFR 60 Subpart OOO. Therefore, the proposed construction is subject to 45CSR16, which incorporates by reference 40 CFR 60 Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants. The facility should be in compliance with 60.672 (b) no greater than 7% opacity from any transfer point on belt conveyors or from any other affected facility (as defined in 60.670 and 60.671) and no greater than 12% opacity from any crusher when the particulate matter control methods and devices proposed within application G40-C087 are in operation.

45CSR30 *Requirements for Operating Permits*

In accordance with 45CSR30 Major Source Determination, the portable crushing facility will be a non-major source which is subject to NSPS Subparts OOO and IIII. The facility's potential to emit will be 2.16 TPY of a regulated air pollutant (PM_{10}), not including fugitive emissions, which is less than the 45CSR30 threshold of 100 TPY. Therefore, the facility will be subject to 45CSR30 and classified as a Title V deferred non-major source.

45CFR60 *Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*

Tunnel Ridge, LLC is subject to this subpart because the engines were manufactured after April 1, 2006. The engine emissions for E-1 and E-2 are EPA Tier 3 Certified.

40CFR63 *Subpart ZZZZ—National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*

Tunnel Ridge, LLC is subject to 40CFR63 Subpart ZZZZ, because E-1 and E-2 are considered a new area source of HAP's since they will be constructed on or after June 12, 2006, however, the only requirements that apply are those required under 45CFR60 Subpart IIII.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Various VOC/non-criteria regulated pollutants are emitted from the incomplete combustion of diesel fuel. These emissions, however, are generally small and do not adversely impact the quality of the surrounding ambient air.

AIR QUALITY IMPACT ANALYSIS

Air dispersion modeling was not performed due to the size and location of this facility and the limit of the proposed construction. This facility will be located in Ohio County, WV, which is currently designated as attainment for $PM_{2.5}$ (particulate matter less than 2.5 microns in diameter).

GENERAL PERMIT ELIGIBILITY

The proposed construction of this facility meets the applicability criteria (Section 2.3), siting criteria (Section 3.1) and limitations and standards (Section 5.1) as specified in General Permit G40-C.

MONITORING OF OPERATIONS

G40-C registrants will be required to perform the following monitoring and recordkeeping:

1. Monitor and record daily and monthly records of the amount of nonmetallic minerals

processed.

2. Monitor and record calendar monthly and calendar annual quantity of fuel consumed and hours of operation for all engines and combustion sources.
3. Monitor and record calendar annual quantity of organic liquid throughput in all registered storage tanks.
4. Conduct visual observations of all points listed in the registration that are subject to opacity limits.
5. Conduct annual preventative maintenance/inspection, and all routine maintenance service and repairs as required, to facilitate proper control device performance, for the control devices listed in the registration.
6. Perform are applicable required monitoring, recordkeeping, reporting and testing that is required under 40CFR60 Subparts OOO, IIII, and JJJJ.
7. These records shall be maintained on-site for a minimum of five (5) years from the date of record creation and shall be made available to the Director of the Division of Air Quality or his or her duly authorized representative upon request.

RECOMMENDATION TO DIRECTOR

The information contained in this construction application indicates that compliance with all applicable regulations should be achieved when all proposed particulate matter control methods are in operation. Due to the location, nature of the process, and control methods proposed, adverse impacts on the surrounding area should be minimized. No public comments were received. Therefore, the granting of a G40-C registration to Tunnel Ridge, LLC for the construction and operation of a portable crusher and screening plant located at the Triadelphia facility near Short Creek, in Ohio County, WV is hereby recommended.

Thornton E. Martin Jr.
Permit Engineer

February 23, 2017
Date